QUIZZES

Practice Test-1 (Biotechnology)

10 Questions

7 min

Topics

Recombinant DNA technology, Polymerase Chain Reaction

Start Quiz

06 : 55

Q 1/10 7 min Hint

Q : In biotechnology, cDNA is synthesized by:

A Reverse transcriptase

B Taq polymerase

C Ligase

D Restriction endonuclease

06 : 56

Q 1/10 7 min Hint

Q : In biotechnology, cDNA is synthesized by:

A Reverse transcriptase

B Taq polymerase

C Ligase

D Restriction endonuclease

06 : 42

Q 2/10 7 min Hint

Q : A virus that can be used as vector for the insertion of gene into the bacterial cell is:

A T phage

B Retrovirus

C Lambda phage

D Tobacco mosaic virus

06 : 41

3/10 7 min Hint

Q : These are natural extra-chromosomal circular DNA molecules present in bacteria:

A Nucleoids

B Plasmids

C Chromatin bodies

D Prophages

06 : 39

4/10 7 min Hint

Q : Plasmids do not carry genes for:

A Drug resistance

B Fertility

C Antibiotic resistance

D Metabolism

Q : All of the following constitute expression system for a foreign gene in biotechnology except:

A Viruses

B Bacteria

C Plants

D Animals

06 : 37

6/10 7 min Hint

Q : Broken ends of two DNA strands are joined by:

A Exonuclease

B Endonuclease

C DNA ligase

D Gyrases

06 : 36

7/10 7 min Hint

Q : PCR requires primer sequence of about:

A 10 DNA bases

B 20 DNA bases

C 10 RNA bases

D 200 RNA bases

06 : 33

8/10 7 min Hint

Q : PCR can be used for all of the following EXCEPT:

A Diagnosis

B Phylogeny

C Forensics

D Chemotherapy

Q Taq polymerase is used in

- Bacterial cloning
- PCR
- Gene sequencing
- Recombinant DNA technology

Q All of the following are true regarding PCR except

A Taq polymerase is heat sensitive

B Gene specific primers are required

C Can create millions of DNA copies very quickly

D Different steps involve different temperatures

Q In biotechnology, cDNA is synthesized by

A Reverse transcriptase

B Taq polymerase

C Ligase

D Restriction endonuclease

Explanation

In biotechnology the enzyme used for the synthesis of cDNA is reverse transcriptase

Q A virus that can be used as vector for the insertion of gene into the bacterial cells

- T phage
- Retrovirus
- Lambda phage
- Tobacco mosaic virus

Explanation

Bacteriophages are the viruses which insert their DNA into the bacterial host where it could integrate with the host genome and reside there without imposing any harm to the host. At this point viral DNA will be referred as prophage

Q These are natural extra-chromosomal circular DNA molecules present in bacteria

A Nucleoids

B Plasmids

C Chromatin bodies

D Prophages

Explanation

Plasmids are molecular vectors which are used in recombinant DNA technology

Q Plasmids do not carry genes for

Drug resistance

Fertility

Antibiotic resistance

Metabolism

Explanation

Extra-chromosomal dsDNA and self-replicating

Contain antibiotic and drug resistant genes

Variable number (few to many)

Use as vectors in Recombinant DNA technology

Correct

Incorrect

Q Plasmids do not carry genes for

Drug resistance

Fertility

Antibiotic resistance

Metabolism

Explanation

Extra chromosomal dsDNA and self replicating

Contain antibiotic and drug resistant genes

Variable number (few to many)

Use as vectors in Recombinant DNA technology

Q All of the following constitute expression system for a foreign gene in biotechnology except

A Viruses

B Bacteria

C Plants

D Animals

Explanation

As viruses are obligate intracellular parasite and cannot make product from the genes in the laboratory that's why viruses cannot be used as an expression system in biotechnology

Q Broken ends of two DNA strands are joined by

- Exonuclease
- Endonuclease
- DNA ligase
- Gyrases

Explanation

After the joining of gene of interest into the plasmid by complementary base pairing, they are permanently sealed by DNA ligase via making phosphodiester bond.

Q PCR requires primer sequence of about:

D 10 DNA bases

A 20 DNA bases

B 10 RNA bases

C 200 RNA bases

Explanation

In-vivo primers: RNA nature, 10 Nucleotides and Synthesized by primase

PCR primers: DNA nature, 20 Nucleotides and chemically synthesized

Q PCR can be used for all of the following EXCEPT

A Diagnosis

B Phylogeny

C Forensics

D Chemotherapy

Explanation

PCR is a technique to amplify the DNA but in chemotherapy drugs are used to treat a particular disease i.e. cancer

Q Taq polymerase is used in

C Bacterial cloning

D PCR

B Gene sequencing

A Recombinant DNA technology

Explanation

Polymerase chain reaction is an in vitro amplification of DNA inside an automated machine called thermocycler

Q All of the following are true regarding PCR except

A Taq polymerase is heat sensitive

B Gene specific primers are required

C Can create millions of DNA copies very quickly

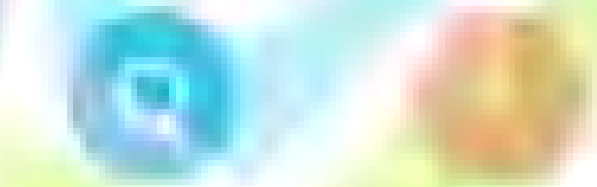
D Different steps involve different temperatures

Explanation

Taq polymerase (DNA polymerase) is a heat stable enzyme and is isolated form Thermusaquaticus (Archaebacteria) It starts extension by adding nucleotides at the 3' end of specific primers

QUIZZES

Practice Test-2 (Biotechnology)



Q Method for generation of different sized DNA fragments by using d deoxyr bonucleoside tr phosphate is

A Maxam Gilber Method

B Vortex-mixing method

C Sangers Method

D Polymerase chain reaction

Q A genome is a full set of genes of a/an

- Population
- Individual
- Community
- Species

Q Di-deoxyr bonucleotides are used in Sanger's gene sequenc ng method because of _____ unique character

A Presence of three phosphate group

B Absence of 2 -OH group

C Absence of 3 -OH group

D P ese ce of rad oactive p hosphorous

Q Di-deoxyr bonucleoside tr phosphates are used to terminate DNA synthes s at different site, which method involves th s procedure?

A Maxam–Gilbert's method

B K B Mullis's method

C Sa ger s method

D Gottlieb's r ethod

Q In Maxam-Gilbert method DNA threads are chemically cut into

A Pieces of single nucleotides

B Pieces of oligonucleotides

C Pieces of different size fragments

D Pieces of polynucleotides

Q Chain terminating nucleotides are used in

A Recombinant method

B Maxam-Gilbert method

C Sanger method

D Vortex method

Q DNA fragments are separated on _____ ge

A Agarose

B Electrophoresis

C Chitin

D Wax

Q DNA finger printing cannot apply on

A Sperm ce

B Skin cellC

C Mature RBC

D Hepat c cell

Q Choose the correct option regarding DNA ana ys s

A Probes denature the DNA

B RFLPs are generated by Sanger's method

C Probes produce d stinctive pattern

D Cloning of genes s performed by ge electrophores s

Q DNA probe s used in

A PCR technique

B Genetic engineering

C DNA fingerprinting

D E ectrophores s

Q Method for generation of different sized DNA fragments by using dideoxyribonucleoside triphosphate is

- Maxam Gilbert Method
- Vortex mixing method
- Sangers Method
- Polymerase chain reaction

Explanation

Dideoxyribonucleoside triphosphates, with both OH groups removed from 2' and 3' C, are used in chain termination or Sanger sequencing method.

Q A genome is a full set of genes of a/an

- Population
- Individual
- Community
- Species

Explanation

The sum of all the genes in an individual is called genome

Q Di-deoxyribonucleotides are used in Sanger's gene sequencing method because of _____ unique character

Presence of three phosphate group

Absence of 2' OH group

Absence of 3' OH group

Presence of radioactive phosphorous

Explanation

Di-deoxyribonucleoside triphosphates (ddNTPs), with both OH- groups removed from 2' and 3'C, are used in chain termination or Sanger sequencing method

Q Di deoxyr bonucleoside tr phosphates are used to terminate DNA synthes s at different site which method involves th s procedure?

Maxam–Gilbert s method

K B Mull s's method

Sangers method

Gottliebs method

Extanction

D deoxyribonuc eos de triphosphates, with both OH groups removed from 2 and 3 C, are used n chain termination or Sanger sequenc ng method.

Q In Maxam-Gilbert method DNA threads are chemically cut into

A Pieces of single nucleotides

B Pieces of oligonucleotides

C Pieces of different size fragments

D Pieces of polynucleotides

Explanation

Nucleases are used to cut DNA into small pieces/ fragments

Q Chain terminating nucleotides are used in

A Recombinant method

B Maxam-Gilbert method

C Sanger method

D Vortex method

Explanation

D-deoxyribonucleoside triphosphates, with both OH- groups removed from 2' and 3' C, are used in chain termination or Sanger sequencing method.

Q DNA fragments are separated on _____ ge

A Agarose

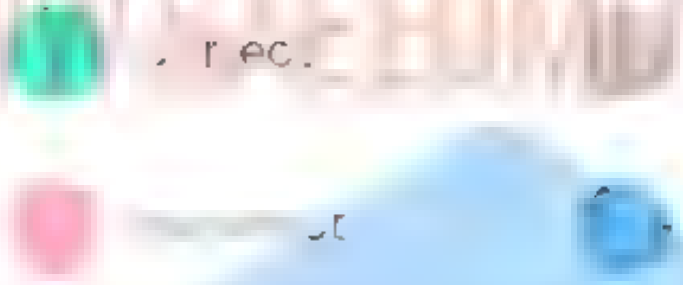
B Electrophoresis

C Chitin

D Wax

Explanation

After restriction digestion, fragments of different sizes are separated by applying an electric field on agarose gel. This separation is primarily depending upon the size of fragments



Q Choose the correct option regarding DNA analysis

Probes denature the DNA

RFLPs are generated by Sangers method

Probes produce distinctive pattern

Cloning of genes is performed by gel electrophoresis

Explanation

Single stranded Radioactively or Fluorescently labeled Short sequence of oligonucleotides Complementary to the target region

Q DNA probe is used in

PCR technique

Genetic engineering

DNA fingerprinting

Electrophoresis

Explanation

The technique of development of an individual's DNA pattern on gel by using radio-labeled probes is called DNA fingerprinting. DNA fingerprint of every individual is very unique and could be used to distinguish between different persons/species

Q DNA finger printing cannot apply on

Sperm ce

Skin cellC

Mature RBC

Hepat c cell

Explanation

Mature RBCs lack nucleus

QUIZZES

Practice Test-3 (Biotechnology)

Q A plant that has been engineered to produce biodegradable plastics is

A Tobacco plant

B Eared cress

C Arabidopsis

D Soybean plant

Q Which technology is not in use to produce insulin from E. coli?

A Genetic engineering

B Recombinant DNA technology

C PCR

D Centrifugation

Q A biotechnology product used to prevent blood clot during surgery is

A Prothrombin

B Fibrinogen

C Ant thromb n

D Heparin

Q Artificial seed is the term that can be used for

A Totipotent cell

B Somatic embryo

C Fertilized egg

D Somaclonal plant

Q To prevent blood clotting during surgery _____ is used

A Prothrombin I

B Prothrombin II

C Anti thrombin I

D Anti thrombin II

Q The cel s wh ch have the full potent a to deve op into a complete organism are

A Un potent

B P ur potent

C B potent

D Totipo.ent

Q Cell suspension culture of *Cinchona ledgeriana* produces

A Anthrombin

B Digitoxin

C Quinine

D α galactosidase

Q SCID patients suffer from life threatening infections because they do not have C

A T cells

B Phagocytic cells

C B cells

D Mature T and B cells

Q Insertion of genet c material into the human ce is to treat a part cular d sease is cal ed

A Reverse transcript on

B Gene mutatior

C Nuc eic ac d hybrid zation

D Gene therapy

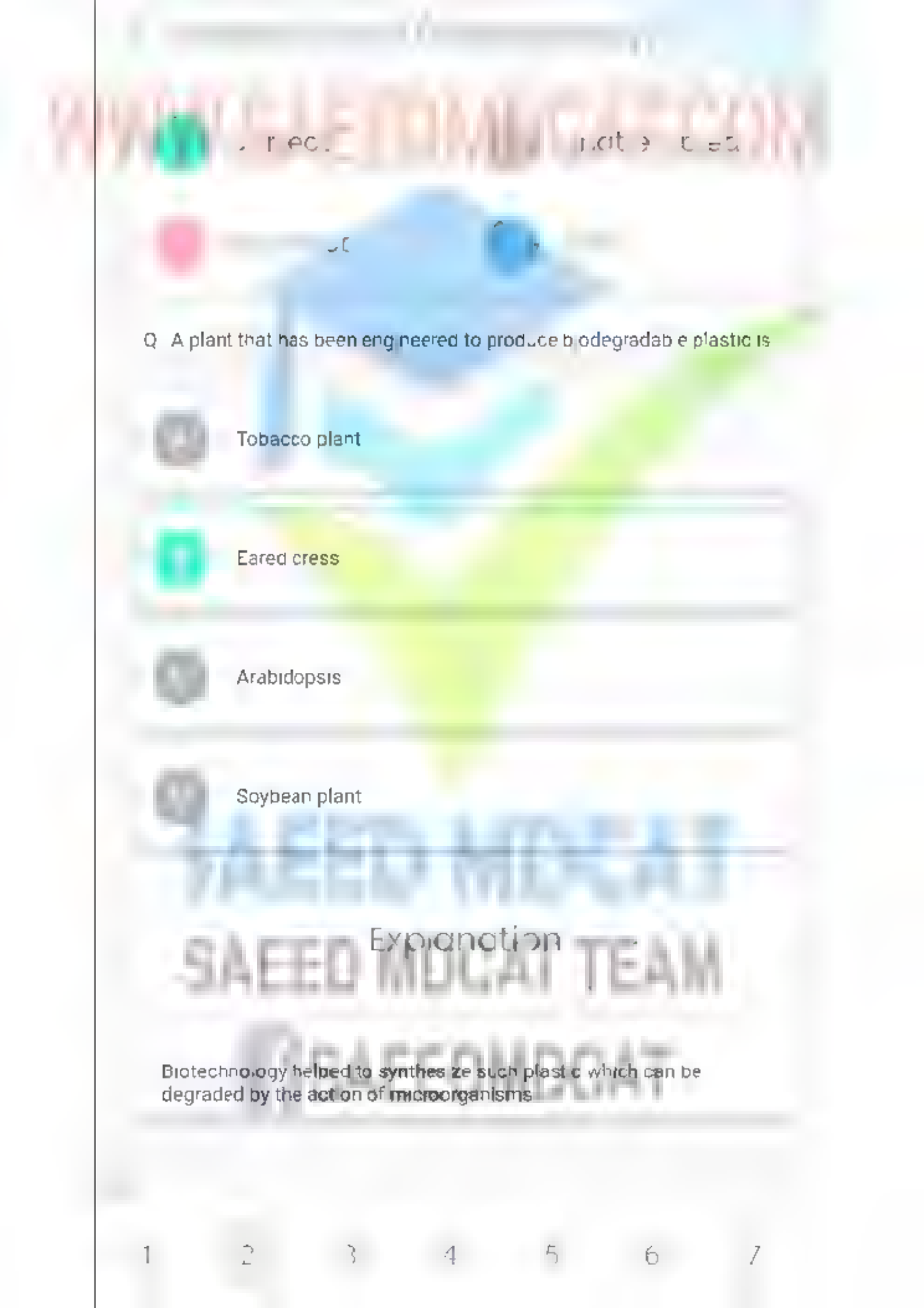
Q Patient of familia hypercholesterolem a is subject to fata

A Necros s

B Heart d seases

C nfect on

D Liver disorders



Q A plant that has been engineered to produce biodegradable plastic is

Tobacco plant

Eared cress

Arabidopsis

Soybean plant

Explanation

Biotechnology helped to synthesize such plastic which can be degraded by the action of microorganisms

Q Which technology is not in use to produce insulin from E. coli?

Genetic engineering

Recombinant DNA technology

PCR

Centrifugation

Explanation

When a gene of interest is inserted into vector with the help of enzymes, resulting in recombinant DNA, which is transferred in the expression system afterwards

Q To prevent blood clotting during surgery _____ is used

A Prothrombin I

B Prothrombin II

C Anti thrombin I

D Anti thrombin II

Explanation

Anti thrombin III prevent blood clotting

Q A biotechnology product used to prevent blood clot during surgery is

Prothrombin

Fibrinogen

Ant thrombin

Heparin

Explanation

Ant thrombin III prevent blood clot formation while hemophilic factors promote it. tPA is use to dissolve blood clot during heart surgery

Q Artificial seed is the term that can be used for

Totipotent cell

Somatic embryo

Fertilized egg

Somaclonal plant

Explanation

Somatic embryo is an encapsulated callus in a protective hydrated ge

Q The cells which have the full potential to develop into a complete organism are

- Unipotent
- Pluripotent
- Bipotent
- Totipotent

Explanation

Plant cells are totipotent which means that they have the full potential to develop into a complete organism when they are cultured in an artificial media

Correct | Unattempted

Incorrect | 6/10

Q : Cell suspension culture of *Cinchona ledgeriana* produces:

A Antithrombin III

B Digitoxin

C Quinine

D α-galactosidase

Explanation

Rapidly growing culture in a liquid nutrient medium are shaken repeatedly to maintain the suspension of cells.

Correct | Unattempted

Incorrect | 8/10

Q : Insertion of genetic material into the human cells to treat a particular disease is called:

A Reverse transcription

B Gene mutation

C Nucleic acid hybridization

D Gene therapy

Explanation

The replacement of defected gene with the healthy gene is called gene therapy.

Correct | Unattempted

Incorrect | 10/10

Q : Patient of familial hypercholesterolemia is subject to fatal:

A Necrosis

B Heart diseases

C Infection

D Liver disorders

Explanation

Absence of cholesterol receptors on liver cells leads to the increased level of blood cholesterol which ultimately results in heat diseases

Correct | Unattempted

Incorrect | 9/10

Q : SCID patients suffer from life threatening infections because they do not have:C

A T cells

B Phagocytic cells

C B cells

D Mature T and B cells

Explanation

B and T cells are the most important component of cell mediated and humoral immunity.